# TRANSACTIONS

OF THE

# American Society of Civil Engineers

INDEX
VOLUME LXXIV

DECEMBER, 1911

SUBJECT INDEX, PAGE 532 AUTHOR INDEX, PAGE 536

Titles of papers are in quotation marks when given with the author's name.

# VOLUME LXXIV

# SUBJECT INDEX

## ARCHES.

"Reinforced Concrete Bridge Across the Almendares River, Havana, Cuba." Eugene Klapp and W. J. Douglas. (With Discussion.) 216.

"Steel Centering Used in the Construction of the Rocky River Bridge, Cleveland, Ohio." Wilbur J. Watson. 1. Discussion: L. J. Mensch, 10.

#### BEAMS.

"Economy in Rectangular Panels, Using — of Constant Cross-Section."
J. S. Branne. (With Discussion.) 166.

## BOILERS.

Cost of -. 15.

#### BRIDGES.

"Economy in Rectangular Panels, Using Beams of Constant Cross-Section." J. S. Branne. (With Discussion.) 166.

"Reinforced Concrete Bridge Across the Almendares River, Havana, Cuba." Eugene Klapp and W. J. Douglas. 216. Discussion: L. J. Mensch, G. B. Strickler, and William Barclay Parsons, 241.

"Steel Centering Used in the Construction of the Rocky River Bridge, Cleveland, Ohio." Wilbur J. Watson. (With Discussion.) 1.

#### BUILDINGS.

"Economy in Rectangular Panels, Using Beams of Constant Cross-Section." J. S. Branne. 166. Discussion: E. G. Walker, 175.

#### CANALS.

"Economic Canal Location in Uniform Countries." Lyman E. Bishop. 178. Discussion: H. J. Doolittle, C. E. Shipman, Sam G. Porter, and C. C. Williams, 189.

#### CEMENT.

"Retrogression in the Tensile Strength of —." J. M. O'Hara. 398. Discussion: Maurice G. Parsons, Clifford Richardson, R. S. Greenman, E. P. Goodrich, and E. D. Knap, 403.

"Some of the Properties of Oil-Mixed Portland — Mortar and Concrete,"
Logan Waller Page. 255. Discussion: S. D. Newton, T. S.
Oxholm, Lars R. Jorgensen, H. de B. Parsons, Frank J. Phelan,
Clifford Richardson, R. D. Coombs, Maurice G. Parsons, E. H.
Thomes, H. F. Dunham, J. B. Lippincott, and E. Kuichling, 271.

#### CENTERING.

"Steel — Used in the Construction of the Rocky River Bridge, Cleveland, Ohio." Wilbur J. Watson. (With Discussion.) 1.

### CONCRETE.

Placing of - by tremie. 334.

"Some of the Properties of Oil-Mixed Portland Cement Mortar and —."

Logan Waller Page. (With Discussion.) 255.

#### DAMS.

"Two Earth — of the United States Reclamation Service." D. C. Henny. 38. Discussion: James Dix Schuyler, 87.

### EARTHWORK.

"Economic Canal Location in Uniform Countries." Lyman E. Bishop. (With Discussion.) 178.

#### ELECTRIC POWER.

Electrification of Detroit River Tunnel. 350.

#### ENGINES.

"The Present-Day Pumping Engine for Water-Works." Charles Arthur Hague. 15. Discussion: John H. Gregory, Charles B. Buerger, George A. Orrok, and Kenneth Allen, 32.

#### GIRDERS.

"Economy in Rectangular Panels, Using Beams of Constant Cross-Section." J. S. Branne. (With Discussion.) 166.

#### IRRIGATION.

"Economic Canal Location in Uniform Countries." Lyman E. Bishop. (With Discussion.) 178.

### LOCOMOTIVES.

"Pioneer Railway Development in the United States." W. D. Taylor. (With Discussion.) 94.

#### MEMOIRS OF DECEASED MEMBERS.

Atkinson, John Bond. 492.

Bell, George Joseph. 495.

Bell, Henry Purdon. 496.

Chanute, Octave. 483.

Emmons, Charles Morton. 499.

Erdmann, Earl Edwin. 529

Ewing, William Bion. 500.

Ferrier, Joseph James. 530.

Hawkins, Irving. 523.

Howe, Horace Joseph. 502.

Jackson, William. 504.

Kenly, Edward Marion. 506.

Leather, Basil Henry. 527.

Lewerenz, Alfred Courtney. 508.

Mackall, Benjamin Franklin. 511.

Matcham, Charles Arthur. 513.

Metcalf, William. 490.

Scherzer, Albert John. 515.

Shima, Takejiro. 525.

Smith, James. 518.

Taylor, William Dana. 520.

Wood, Charles Widney. 522.

#### MORTARS.

"Some of the Properties of Oil-Mixed Portland Cement Mortar and Concrete." Logan Waller Page. (With Discussion.) 255.

#### PIPE.

"Experiments on the Flow of Water in Wood Stave Pipes." E. A. Moritz. (With Discussion.) 411.

### PIPE LINES.

"Experiments on the Flow of Water in Wood Stave Pipes." E. A. Moritz. (With Discussion.) 411.

#### PUMPING ENGINES.

See ENGINES.

# PUMPS.

Cost of - and pumpings stations. 15.

### RAILROAD TERMINALS.

Michigan Central Railroad Terminal at Detroit. 352.

#### RAILROAD YARDS.

Windsor Yard, Michigan Central Railroad. 354.

#### RAILROADS.

"Pioneer Railway Development in the United States." W. D. Taylor. 94. Discussion: Marshall R. Pugh, R. L. Morrison, William J. Boucher, George T. Hammond, and Fred. J. Wood, 135.

"The Detroit River Tunnel." Wilson Sherman Kinnear. (With Discussion.) 288.

#### RAILS.

"Pioneer Railway Development in the United States." W. D. Taylor. (With Discussion.) 94.

## REINFORCED CONCRETE.

"A - Stand-Pipe." W. W. Clifford. (With Discussion.) 375.

"— Bridge Across the Almendares River, Havana, Cuba." Eugene Klapp and W. J. Douglas. (With Discussion.) 216.

"Steel Centering Used in the Construction of the Rocky River Bridge, Cleveland, Ohio." Wilbur J. Watson. (With Discussion.) 1.

#### RESERVOIRS.

"Two Earth Dams of the United States Reclamation Service." D. C. Henny. (With Discussion.) 38.

#### ROADS.

Foundations of oil-mixed Portland cement concrete for -. 268 et seq.

## STAND-PIPES.

"A Reinforced Concrete Stand-Pipe." W. W. Clifford. 375. Discussion: William Fry Scott, William Mueser, W. J. Douglas, Joseph A. Powers, 392.

#### SURVEYING.

"Economic Canal Location in Uniform Countries." Lyman E. Bishop. (With Discussion.) 178.

#### TIES.

"Pioneer Railway Development in the United States." W. D. Taylor. (With Discussion.) 94.

#### TRACK.

"Pioneer Railway Development in the United States." W. D. Taylor. (With Discussion.) 94.

#### TUNNEL SHIELDS.

- for Detroit River Tunnel. 304 et seq.

#### TUNNELS.

"The Detroit River Tunnel." Wilson Sherman Kinnear. 288. Discussion: H. A. Carson, H. F. Dunham, Charles B. Buerger, E. M. Walker, and Olaf Hoff, 357.

## WATER, FLOW OF, IN PIPES.

"Experiments on the Flow of Water in Wood Stave Pipes." E. A. Moritz. 411. Discussion: Robert G. Dieck, Melvin L. Enger, J. L. Campbell, Rudolph Hering, Gardner S. Williams, J. S. Moore, and Charles G. Darrach, 452.

"The Flow of Water in Cylindrical Conduits." Sidney A. Reeve. 206.

### WATER-PROOFING.

"Some of the Properties of Oil-Mixed Portland Cement Mortar and Concrete." Logan Waller Page (With Discussion.) 255.

- for Detroit River Tunnel. 317.

#### WATER-WORKS.

See also ENGINES.

#### WOOD PIPE.

"Experiments on the Flow of Water in Wood Stave Pipes." E. A. Moritz. (With Discussion.) 411.

# **AUTHOR INDEX**

ALLEN, KENNETH.

Water-works pumping engines. 36.

ATKINSON, JOHN BOND.

Memoir of. 492.

BELL, GEORGE JOSEPH.

Memoir of. 495.

BELL, HENRY PURDON.

Memoir of. 496.

BISHOP, LYMAN E.

"Economic Canal Location in Uniform Countries." 179

BOUCHER, WILLIAM J.

Railway development in the United States. 140.

BRANNE, J. S.

"Economy in Rectangular Panels, Using Beams of Constant Cross-Section." 166.

BUERGER, CHARLES B.

Detroit River Tunnel. 360.

Water-works pumping engines. 33.

CAMPBELL, J. L.

Flow of water in wood pipe. 455.

CARSON, H. A.

Detroit River Tunnel. 357.

CHANUTE, OCTAVE.

Memoir of. 483.

CLIFFORD, W. W.

" A Reinforced Concrete Stand-Pipe." 373.

COOMBS, R. D.

Oil-mixed Portland cement mortar and concrete. 279.

DARRACH, CHARLES G.

Flow of water in wood pipe. 472.

DIECK, ROBERT G.

Flow of water in wood pipe. 452.

DOOLITTLE, H. J.

Economic canal location. 189.

## DOUGLAS, W. J.

A reinforced concrete stand-pipe. 393.

"Reinforced Concrete Bridge Across the Almendares River, Havana, Cuba." 216.

## DUNHAM, H. F.

Detroit River Tunnel. 358.

Oil-mixed Portland cement mortar and concrete. 282.

## EMMONS, CHARLES MORTON.

Memoir of. 499.

## ENGER, MELVIN L.

Flow of water in wood pipe. 455.

# ERDMANN, EARL EDWIN.

Memoir of. 529.

# EWING, WILLIAM BION.

Memoir of. 500.

# FERRIER, JOSEPH JAMES.

Memoir of. 530.

# GOODRICH, E. P.

Retrogression in tensile strength of cement. 406.

## GREENMAN, R. S.

Retrogression in tensile strength of cement. 405.

## GREGORY, JOHN H.

Water-works pumping engines. 32.

### HAGUE, CHARLES ARTHUR.

"The Present-Day Pumping Engine for Water-Works." 15.

### HAMMOND, GEORGE T.

Railway development in the United States. 144.

### HAWKINS, IRVING.

Memoir of. 523.

## HENNY, D. C.

"Two Earth Dams of the United States Reclamation Service." 38.

## HERING, RUDOLPH.

Flow of water in wood pipe. 458.

### HOFF, OLAF.

Detroit River Tunnel. 361.

### HOWE, HORACE JOSEPH.

Memoir of. 502.

### JACKSON, WILLIAM.

Memoir of. 504.

## JORGENSEN, LARS R.

Oil-mixed Portland cement mortar and concrete. 275.

# KENLY, EDWARD MARION.

Memoir of. 506.

## KINNEAR, WILSON SHERMAN.

"The Detroit River Tunnel." 288.

## KLAPP, EUGENE.

"Reinforced Concrete Bridge Across the Almendares River, Havana, Cuba." 216.

## KNAP, E. D.

Retrogression in tensile strength of cement. 407.

## KUICHLING, E.

Oil-mixed Portland cement mortar and concrete. 284.

## LEATHER, BASIL HENRY.

Memoir of. 527.

#### LEWERENZ, ALFRED COURTNEY.

Memoir of. 508.

#### LIPPINCOTT, J. B.

Oil-mixed Portland cement mortar and concrete. 282.

# MACKALL, BENJAMIN FRANKLIN.

Memoir of. 511.

# MATCHAM, CHARLES ARTHUR.

Memoir of. 513.

# MENSCH, L. J.

Almendares River Reinforced Concrete Bridge. 241. Steel centering for concrete bridges. 10.

# METCALF, WILLIAM.

Memoir of. 490.

#### MOORE, J. S.

Flow of water in wood pipe. 463.

# MORITZ, E. A.

"Experiments on the Flow of Water in Wood Stave Pipes." 411.

## MORRISON, R. L.

Railway development in the United States. 139.

# MUESER, WILLIAM.

A reinforced concrete stand-pipe. 392.

#### NEWTON, S. D.

Oil mixed Portland cement mortar and concrete. 271.

# O'HARA, J. M.

"Retrogression in the Tensile Strength of Cement." 398.

# ORROK, GEORGE A.

Water-works pumping engines. 36.

#### OXHOLM, T. S.

Oil-mixed Portland cement mortar and concrete. 272.

#### PAGE, LOGAN WALLER.

"Some of the Properties of Oil-Mixed Portland Cement Mortar and Concrete." 255.

# PARSONS H. de B.

Oil-mixed Portland cement mortar and concrete. 276.

# PARSONS, MAURICE G.

Oil-mixed Portland cement mortar and concrete. 280. Retrogression in tensile strength of cement. 403.

# PARSONS, WILLIAM BARCLAY.

Almendares River Reinforced Concrete Bridge. 253.

## PHELAN, FRANK J.

Oil-mixed Portland cement mortar and concrete. 276.

#### PORTER, SAM G.

Economic canal location. 192.

# POWERS, JOSEPH A.

A reinforced concrete stand-pipe. 396.

#### PUGH, MARSHALL R.

Railway development in the United States. 135.

## REEVE, SIDNEY A.

"The Flow of Water in Cylindrical Conduits." 206.

### RICHARDSON, CLIFFORD.

Oil-mixed Portland cement mortar and concrete. 278. Retrogression in tensile strength of cement. 404.

# SCHERZER, ALBERT JOHN.

Memoir of. 515.

# SCHUYLER, JAMES DIX.

Earth dams. 87.

#### SCOTT. WILLIAM FRY.

A reinforced concrete stand-pipe, 392.

#### SHIMA, TAKEIIRO.

Memoir of. 525.

## SHIPMAN, C. E.

Economic canal location, 190,

# SMITH, JAMES.

Memoir of. 518.

#### STRICKLER, G. B.

Almendares River Reinforced Concrete Bridge. 250.

# TAYLOR, WILLIAM DANA.

Memoir of. 520.

"Pioneer Railway Development in the United States." 94.

## THOMES, E. H.

Oil-mixed Portland cement mortar and concrete. 281.

## WALKER, E. G.

Economy in rectangular panels. 175.

# WALKER, E. M.

Detroit River Tunnel. 360.

# WATSON, WILBUR J.

"Steel Centering Used in the Construction of the Rocky River Bridge, Cleveland, Ohio." 1.

## WILLIAMS, C. C.

Economic canal location. 194.

### WILLIAMS, GARDNER S.

Flow of water in wood pipe. 463.

# WOOD, CHARLES WIDNEY.

Memoir of. 522.

### WOOD, FRED. J.

Railroad development in the United States. 156.

